WE CLAIM:

1. A method of global motion compensation, comprising:

calculating the motion vectors for all pixels in an image by effecting the linear interpolation and/or extrapolation of the motion vectors at three representative points for the image, and

assuming sampling intervals of the pixels to be 1 in both horizontal and vertical directions with respect to the image, and assuming sampling points for which horizontal and vertical components of coordinates of the sampling points are both integers,

wherein the three points used as the representative points are selected from among four points of which the coordinates are (i, j), (i+p, j), (i, j+q), and (i+p, j+q) (where i and j are integers, and p and q are positive integers), and wherein p and q are 2^{α} and 2^{β} (α and β are positive integers), respectively.

2. A method of global motion compensation, comprising:

calculating the motion vectors for all pixels in an image by effecting the linear interpolation and/or extrapolation of the motion vectors at four representative points for the image, and

assuming sampling intervals of the pixels to be 1 in both horizontal and vertical directions with respect to the image, and assuming sampling points for which horizontal and vertical components of coordinates of the sampling points are both integers,

wherein the four representative points have the coordinates of (i, j), (i+p, j), (i, j+q), and (i+p, j+q) (where i and j are integers, and p and q are positive integers), and wherein p and q are 2^{α} and 2^{β} (α and β are positive integers), respectively.

3. A method of synthesizing an interframe predicted image, comprising:

sampling an image with sampling intervals of pixels in an image of 1 in both the horizontal and vertical directions and with sampling points having horizontal and vertical components of the coordinates that are both integers,

wherein the horizontal and vertical components of motion vectors at representative points (i, j), (i+p, j) and (i, j+q) assume values of integral multiples of 1/k only (where i and j are integers, p and q are positive integers, k is 2^{h0} and h0 is an integer which is not negative),

when the horizontal and vertical components of the motion vectors of the pixels assume values of integral multiples of 1/m only (where m is 2^{h1}, and h1 is an integer which is not negative,

using (u0, v0), (u1, v1) and (u2, v2) (where u0, v0, u1, v1, u2 and v2 are integers) which are k times the horizontal and vertical components of motion vectors at the representative points (i, j), (i+p, j) and (i, j+q), and

wherein (u(x, y) and v(x, y)) which are m times the horizontal and vertical components of the motion vector of a pixel (x, y) (where x, y, u(x, y) and v(x, y) are integers) are given by

$$u(x, y) = (u0 \cdot p \cdot q + (u1 - u0)(x - i) \cdot q + (u2 - u0)(y - j) \cdot p)\, m // (p \cdot q \cdot k)$$

$$v(x, y) = (v0 \cdot p \cdot q + (v1 - v0)(x - i) \cdot q + (v2 - v0)(y - j) \cdot p)\, m // (p \cdot q \cdot k)$$

(where "//" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the ordinary division is not an integer, and its priority as an operator is the same as that of the ordinary multiplication and division) and

wherein p and q are 2^{α} and 2^{β} (where α and β are positive integers), respectively.

4. A method of synthesizing an interframe predicted image, comprising:

sampling an image with sampling intervals of pixels in an image of 1 in both the horizontal and vertical directions and with sampling points having horizontal and vertical components of the coordinates that are both integers,

wherein the horizontal and vertical components of motion vectors at representative points (i, j), (i+p, j) and (i+p, j+q) assume values of integral multiples of 1/k only (where i and j are integers, p and q are positive integers, k is 2^{h0}, and h0 is an integer which is not negative),

when the horizontal and vertical components of the motion vectors of the pixels assume values of integral multiples of 1/m only (where m is 2^{h1}, and h1 is an integer which is not negative),

using (u0, v0), (u1, v1) and (u3, v3) (where u0, v0, u1, v1, u3 and v3 are integers) which are k times the horizontal and vertical components of the motion vectors at the representative points (i, j), (i+p, j) and (i+p, j+q),

wherein (u(x, y) and v(x, y)) which are m times the horizontal and vertical components of the motion vector of a pixel (x, y) (where x, y, u(x, y) and v(x, y) are integers) are given by

$$u(x, y) = (u0 \cdot p \cdot q + (u1 - u0)(x - i) \cdot q + (u3 - u1)(y - j) \cdot p)\, m // (p \cdot q \cdot k)$$

$$v(x, y) = (v0 \cdot p \cdot q + (v1 - v0)(x - i) \cdot q + (v3 - v1)(y - j) \cdot p)\, m // (p \cdot q \cdot k)$$

(where "//" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the ordinary division is not an integer, and its

priority as an operator is the same as that of the ordinary multiplication and division) and

wherein p and q are 2^{α} and 2^{β} (where α and β are positive integers), respectively.

5. A method of synthesizing an interframe predicted image, comprising:

sampling an image with sampling intervals of pixels in an image of 1 in both the horizontal and vertical directions and with sampling points having horizontal and vertical components of the coordinates that are both integers,

wherein the horizontal and vertical components of motion vectors at representative points (i, j), (i, j+q) and (i+p, j+q) assume values of integral multiples of 1/k only (where i and j are integers, p and q are positive integers, k is 2^{h0} and h0 is an integer which is not negative),

when the horizontal and vertical components of the motion vectors of the pixels assume values of integral multiples of 1/m only (where m is 2^{h1}, and h1 is an integer which is not negative),

using (u0, v0), (u2, v2) and (u3, v3) (where u0, v0, u2, v2, u3 and v3 are integers) which are k times the horizontal and vertical components of the motion vectors at the representative points (i, j), (i, j+q) and (i+p, j+q),

wherein (u(x, y) and v(x, y)) which are m times the horizontal and vertical components of the motion vector of a pixel (x, y) (where x, y, u(x, y) and v(x, y) are integers) are given by

$$u(x, y) = (u0 \cdot p \cdot q + (u3 - u2)(x - i) \cdot q + (u2 - u0)(y - j) \cdot p) m // (p \cdot q \cdot k)$$

$$v(x, y) = (v0 \cdot p \cdot q + (v3 - v2)(x - i) \cdot q + (v2 - v0)(y - j) \cdot p) m // (p \cdot q \cdot k)$$

(where "//" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the ordinary division is not an integer, and its priority as an operator is the same as that of the ordinary multiplication and division) and

wherein p and q are 2^{α} and 2^{β} (where α and β are positive integers), respectively.

6. A method of synthesizing an interframe predicted image, comprising:

sampling an image with sampling intervals of pixels in an image of 1 in both the horizontal and vertical directions and with sampling points having horizontal and vertical components of the coordinates that are both integers,

wherein the horizontal and vertical components of motion vectors at representative points (i+p, j), (i, j+q) and (i+p, j+q) assume values of integral values of 1/k only (where i and j are integers, p and q are positive integers, k is 2^{h0}, and h0 is an integer which is not negative),

when the horizontal and vertical components of the motion vectors of the pixels assume values of integral multiples of 1/m only (where m is 2^{h1}, and h1 is an integer which is not negative),

using (u1, v1), (u2, v2) and (u3, v3) (where u1, v1, u2, v2, u3 and v3 are integers) which are k times the horizontal and vertical components of the motion vectors at representative points (i+p, j), (i, j+q) and (i+p, j+q),

wherein (u(x, y) and v(x, y)) which are m times the horizontal and vertical components of the motion vector of a pixel (x, y) (where x, y, u(x, y) and v(x, y) are integers) are given by,

$$u(x, y) = (u3 \cdot p \cdot q + (u2 - u3)(p - x + i) \cdot q + (u1 - u3)(q - y + j) \cdot p) m // (p \cdot q \cdot k)$$

$$v(x, y) = (v0 \cdot p \cdot q + (v2 - v3)(p - x + i) \cdot q + (v1 - v3)(q - y + j) \cdot p)m // (p \cdot q \cdot k)$$

(where "//" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the ordinary division is not an integer, and its priority as an operator is the same as that of the ordinary multiplication and division) and

wherein p and q are 2^{α} and 2^{β} (where α and β are positive integers), respectively.

7. A method of synthesizing an interframe predicted image, comprising:

sampling an image with sampling intervals of pixels in an image of 1 in both the horizontal and vertical directions and with sampling points having horizontal and vertical components of the coordinates that are both integers,

wherein the horizontal and vertical components of motion vectors at representative points (i, j), (i+p, j), (i, j+q) and (i+p, j+q) assume values of integral values of 1/k only (where i and j are integers, p and q are positive integers, k is 2^{h0}, and h0 is an integer which is not negative),

when the horizontal and vertical components of the motion vectors of the pixels assume values of integral multiples of 1/m only (where m is 2^{h1}, and h1 is an integer which is not negative),

using (u0, v0), (u1, v1), (u2, v2) and (u3, v3) (where u0, v0, u1, v1, u2, v2, u3 and v3 are integers) which are k times as great as the horizontal and vertical components of the motion vectors at representative points (i, j), (i+p, j), (i, j+q) and (i+p, j+q),

wherein (u(x, y) and v(x, y)) which are m times the horizontal and vertical components of the motion vector of a

pixel (x, y) (where x, y, u(x, y) and v(x, y) are integers) are given by,

$$u(x, y) = ((u0(p-x+i)+u1(x-i))(q-y+j)+(u2(p-x+i)+u3(x-i))(y-j))m//(p\cdot q\cdot k)$$

$$v(x, y) = ((v0(p-x+i)+v1(x-i))(q-y+j)+(v2(p-x+i)+v3(x-i))(y-j))m//(p\cdot q\cdot k)$$

(where "//" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the ordinary division is not an integer, and its priority as an operator is the same as that of the ordinary multiplication and division) and

wherein p and q are 2^{α} and 2^{β} (where α and β are positive integers), respectively.

8. A method of synthesizing an interframe predicted image according to claim 3, wherein

the coordinates of pixels at the left upper end, right upper end, left lower end and right lower end of the image are (0, 0), (r, 0), (0, s) and (r, s) (where r and s are positive integers),

the horizontal and vertical components of motion vectors at corner points (0, 0), (r, 0) and (0, s) of the image take values of integral multiples of 1/n (where n is a positive integer),

said method uses (u00, v00), (u01, v01) and (u02, v02) (where u00, v00, u01, v01, u02 and v02 are integers) which are n times said motion vectors, and

(u0, v0), (u1, v1), (u2, v2) and (u3, v3) which are k times the horizontal and vertical components of motion vectors at points (i, j), (i+p, j), (i, j+q) and (i+p, j+q) and are given by,

$$u'(x, y) = (u00\cdot r\cdot s+(u01-u00)x\cdot s+(u02-u00)y\cdot r)k///(r\cdot s\cdot n)$$

$$v'(x, y) = (v00 \cdot r \cdot s + (v01 - v00) x \cdot s + (v02 - v00) y \cdot r) k /// (r \cdot s \cdot n)$$

$$u0 = u'(i, j)$$

$$v0 = v'(i, j)$$

$$u1 = u'(i+p, j)$$

$$v1 = v'(i+p, j)$$

$$u2 = u'(i, j+q)$$

$$v2 = v'(i, j+q)$$

$$u3 = u'(i+p, j+q)$$

$$v3 = v'(i+p, j+q)$$

(where "///" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the operation is not an integer, and its priority as an operator is the same as that of the ordinary multiplication and division) and

further wherein three points among these four points and their motion vectors are used as representative points and their motion vectors, respectively.

9. A method of synthesizing an interframe predicted image according to claim 3, wherein

the coordinates of pixels at the left upper end, right upper end, left lower end and right lower end of the image are (0, 0), (r, 0), (0, s) and (r, s) (where r and s are positive integers),

the horizontal and vertical components of motion vectors at corner points (0, 0), (r, 0) and (r, s) of the image take values of integral multiples of 1/n (where n is a positive integer),

said method uses (u00, v00), (u01, v01) and (u03, v03) (where u00, v00, u01, v01, u03 and v03 are integers) which are n times as great as said motion vectors, and

(u0, v0), (u1, v1), (u2, v2) and (u3, v3) which are k times as great as the horizontal and vertical components of

motion vectors at points (i, j), (i+p, j), (i, j+q) and (i+p, j+q) are given by,

u'(x, y) = (u00·r·s+(u01-u00)x·s+(u03-u01)y·r)k

///(r·s·n)

v'(x, y) = (v00·r·s+(v01-v00)x·s+(v03-v01)y·r)k

///(r·s·n)

u0 = u'(i, j)

v0 = v'(i, j)

u1 = u'(i+p, j)

v1 = v'(i+p, j)

u2 = u'(i, j+q)

v2 = v'(i, j+q)

u3 = u'(i+p, j+q)

v3 = v'(i+p, j+q)

(where "///" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the operation is not an integer, and its priority as an operator is the same as that of the ordinary multiplication and division) and

further wherein three points among these four points and their motion vectors are used as representative points and their motion vectors, respectively.

10. A method of synthesizing an interframe predicted image according to claim 3, wherein

the coordinates of pixels at the left upper end, right upper end, left lower end and right lower end of the image are (0, 0), (r, 0), (0, s) and (r, s) (where r and s are positive integers),

the horizontal and vertical components of motion vectors at corner points (0, 0), (0, s) and (r, s) of the image take values of integral multiples of 1/n (where n is a positive integer),

said method uses (u00, v00), (u02, v02) and (u03, v03) (where u00, v00, u02, v02, u03 and v03 are integers) which are n times as great as said motion vectors, and

(u0, v0), (u1, v1), (u2, v2) and (u3, v3) which are k times as great as the horizontal and vertical components of motion vectors at points (i, j), (i+p, j), (i, j+q) and (i+p, j+q) are given by,

$$u'(x, y) = (u00 \cdot r \cdot s + (u03 - u02)x \cdot s + (u02 - u00)y \cdot r)k$$

$$///(r \cdot s \cdot n)$$

$$v'(x, y) = (v00 \cdot r \cdot s + (v03 - v02)x \cdot s + (v02 - v00)y \cdot r)k$$

$$///(r \cdot s \cdot n)$$

$$u0 = u'(i, j)$$

$$v0 = v'(i, j)$$

$$u1 = u'(i+p, j)$$

$$v1 = v'(i+p, j)$$

$$u2 = u'(i, j+q)$$

$$v2 = v'(i, j+q)$$

$$u3 = u'(i+p, j+q)$$

$$v3 = v'(i+p, j+q)$$

(where "///" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the operation is not an integer, and its priority as an operator is the same as that of the ordinary multiplication and division) and

further wherein three points among these four points and their motion vectors are used as representative points and their motion vectors, respectively.

11. A method of synthesizing an interframe predicted image according to claim 3, wherein

coordinates of pixels at the left upper end, right upper end, left lower end and right lower end of the image are (0, 0), (r, 0), (0, s) and (r, s) (where r and s are positive integers),

the horizontal and vertical components of motion vectors at corner points (r, 0), (0, s) and (r, s) of the image take values of integral multiples of 1/n (where n is a positive integer),

said method uses (u01, v01), (u02, v02) and (u03, v03) (where u01, v01, u02, v02, u03 and v03 are integers) which are n times as great as said motion vectors, and

(u0, v0), (u1, v1), (u2, v2) and (u3, v3) which are k times as great as the horizontal and vertical components of motion vectors at points (i, j), (i+p, j), (i, j+q) and (i+p, j+q) are given by,

$$u'(x, y) = (u03 \cdot r \cdot s + (u01 - u03)(r - x) \cdot s + (u02 - u03)(s - y) \cdot r) k /// (r \cdot s \cdot n)$$

$$v'(x, y) = (v03 \cdot r \cdot s + (v01 - v03)(r - x) \cdot s + (v02 - v03)(s - y) \cdot r) k /// (r \cdot s \cdot n)$$

$$u0 = u'(i, j)$$

$$v0 = v'(i, j)$$

$$u1 = u'(i+p, j)$$

$$v1 = v'(i+p, j)$$

$$u2 = u'(i, j+q)$$

$$v2 = v'(i, j+q)$$

$$u3 = u'(i+p, j+q)$$

$$v3 = v'(i+p, j+q)$$

(where "///" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the operation is not an integer, and its priority as an operator is the same as that of the ordinary multiplication and division) and

further wherein three points among these four points and their motion vectors are used as representative points and their motion vectors, respectively.

12. A method of synthesizing an interframe predicted image according to claim 4, wherein

the coordinates of pixels at the left upper end, right upper end, left lower end and right lower end of the image are (0, 0), (r, 0), (0, s) and (r, s) (where r and s are positive integers),

the horizontal and vertical components of motion vectors at corner points (0, 0), (r, 0) and (0, s) of the image take values of integral multiples of 1/n (where n is a positive integer),

said method uses (u00, v00), (u01, v01) and (u02, v02) (where u00, v00, u01, v01, u02 and v02 are integers) which are n times said motion vectors, and

(u0, v0), (u1, v1), (u2, v2) and (u3, v3) which are k times the horizontal and vertical components of motion vectors at points (i, j), (i+p, j), (i, j+q) and (i+p, j+q) and are given by,

$$u'(x, y) = (u00 \cdot r \cdot s + (u01 - u00) x \cdot s + (u02 - u00) y \cdot r) k /// (r \cdot s \cdot n)$$

$$v'(x, y) = (v00 \cdot r \cdot s + (v01 - v00) x \cdot s + (v02 - v00) y \cdot r) k /// (r \cdot s \cdot n)$$

$$u0 = u'(i, j)$$

$$v0 = v'(i, j)$$

$$u1 = u'(i+p, j)$$

$$v1 = v'(i+p, j)$$

$$u2 = u'(i, j+q)$$

$$v2 = v'(i, j+q)$$

$$u3 = u'(i+p, j+q)$$

$$v3 = v'(i+p, j+q)$$

(where "///" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the operation is not an integer, and its priority as an operator is the same as that of the ordinary multiplication and division) and

further wherein three points among these four points and their motion vectors are used as representative points and their motion vectors, respectively.

13. A method of synthesizing an interframe predicted image according to claim 4, wherein

the coordinates of pixels at the left upper end, right upper end, left lower end and right lower end of the image are (0, 0), (r, 0), (0, s) and (r, s) (where r and s are positive integers),

the horizontal and vertical components of motion vectors at corner points (0, 0), (r, 0) and (r, s) of the image take values of integral multiples of 1/n (where n is a positive integer),

said method uses (u00, v00), (u01, v01) and (u03, v03) (where u00, v00, u01, v01, u03 and v03 are integers) which are n times as great as said motion vectors, and

(u0, v0), (u1, v1), (u2, v2) and (u3, v3) which are k times as great as the horizontal and vertical components of motion vectors at points (i, j), (i+p, j), (i, j+q) and (i+p, j+q) are given by,

$$u'(x, y) = (u00 \cdot r \cdot s + (u01 - u00) x \cdot s + (u03 - u01) y \cdot r) k$$

$$/// (r \cdot s \cdot n)$$

$$v'(x, y) = (v00 \cdot r \cdot s + (v01 - v00) x \cdot s + (v03 - v01) y \cdot r) k$$

$$/// (r \cdot s \cdot n)$$

$$u0 = u'(i, j)$$

$$v0 = v'(i, j)$$

$$u1 = u'(i+p, j)$$

$$v1 = v'(i+p, j)$$

$$u2 = u'(i, j+q)$$

$$v2 = v'(i, j+q)$$

$$u3 = u'(i+p, j+q)$$

$$v3 = v'(i+p, j+q)$$

(where "///" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the operation is not an integer, and its priority as an operator is the same as that of the ordinary multiplication and division) and

further wherein three points among these four points and their motion vectors are used as representative points and their motion vectors, respectively.

14. A method of synthesizing an interframe predicted image according to claim 4, wherein

the coordinates of pixels at the left upper end, right upper end, left lower end and right lower end of the image are (0, 0), (r, 0), (0, s) and (r, s) (where r and s are positive integers),

the horizontal and vertical components of motion vectors at corner points (0, 0), (0, s) and (r, s) of the image take values of integral multiples of 1/n (where n is a positive integer),

said method uses (u00, v00), (u02, v02) and (u03, v03) (where u00, v00, u02, v02, u03 and v03 are integers) which are n times as great as said motion vectors, and

(u0, v0), (u1, v1), (u2, v2) and (u3, v3) which are k times as great as the horizontal and vertical components of motion vectors at points (i, j), (i+p, j), (i, j+q) and (i+p, j+q) are given by,

$$u'(x, y) = (u00 \cdot r \cdot s + (u03 - u02) x \cdot s + (u02 - u00) y \cdot r) k$$

$$///(r \cdot s \cdot n)$$

$$v'(x, y) = (v00 \cdot r \cdot s + (v03 - v02) x \cdot s + (v02 - v00) y \cdot r) k$$

$$///(r \cdot s \cdot n)$$

$$u0 = u'(i, j)$$

$$v0 = v'(i, j)$$

$$u1 = u'(i+p, j)$$

v1 = v'(i+p, j)

u2 = u'(i, j+q)

v2 = v'(i, j+q)

u3 = u'(i+p, j+q)

v3 = v'(i+p, j+q)

(where "///" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the operation is not an integer, and its priority as an operator is the same as that of the ordinary multiplication and division) and

further wherein three points among these four points and their motion vectors are used as representative points and their motion vectors, respectively.

15. A method of synthesizing an interframe predicted image according to claim 4, wherein

coordinates of pixels at the left upper end, right upper end, left lower end and right lower end of the image are (0, 0), (r, 0), (0, s) and (r, s) (where r and s are positive integers),

the horizontal and vertical components of motion vectors at corner points (r, 0), (0, s) and (r, s) of the image take values of integral multiples of 1/n (where n is a positive integer),

said method uses (u01, v01), (u02, v02) and (u03, v03) (where u01, v01, u02, v02, u03 and v03 are integers) which are n times as great as said motion vectors, and

(u0, v0), (u1, v1), (u2, v2) and (u3, v3) which are k times as great as the horizontal and vertical components of motion vectors at points (i, j), (i+p, j), (i, j+q) and (i+p, j+q) are given by,

u'(x, y) = (u03·r·s+(u01-u03)(r-x)·s+

(u02-u03)(s-y)·r)k///(r·s·n)

v'(x, y) = (v03·r·s+(v01-v03)(r-x)·s+

(v02-v03)(s-y)·r)k///(r·s·n)

u0 = u'(i, j)

v0 = v'(i, j)

u1 = u'(i+p, j)

v1 = v'(i+p, j)

u2 = u'(i, j+q)

v2 = v'(i, j+q)

u3 = u'(i+p, j+q)

v3 = v'(i+p, j+q)

(where "///" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the operation is not an integer, and its priority as an operator is the same as that of the ordinary multiplication and division) and

further wherein three points among these four points and their motion vectors are used as representative points and their motion vectors, respectively.

16. A method of synthesizing an interframe predicted image according to claim 5, wherein

the coordinates of pixels at the left upper end, right upper end, left lower end and right lower end of the image are (0, 0), (r, 0), (0, s) and (r, s) (where r and s are positive integers),

the horizontal and vertical components of motion vectors at corner points (0, 0), (r, 0) and (0, s) of the image take values of integral multiples of 1/n (where n is a positive integer),

said method uses (u00, v00), (u01, v01) and (u02, v02) (where u00, v00, u01, v01, u02 and v02 are integers) which are n times said motion vectors, and

(u0, v0), (u1, v1), (u2, v2) and (u3, v3) which are k times the horizontal and vertical components of motion

vectors at points (i, j), (i+p, j), (i, j+q) and (i+p, j+q) and are given by,

$$u'(x, y) = (u00 \cdot r \cdot s + (u01 - u00) x \cdot s + (u02 - u00) y \cdot r) k /// (r \cdot s \cdot n)$$

$$v'(x, y) = (v00 \cdot r \cdot s + (v01 - v00) x \cdot s + (v02 - v00) y \cdot r) k /// (r \cdot s \cdot n)$$

$$u0 = u'(i, j)$$

$$v0 = v'(i, j)$$

$$u1 = u'(i+p, j)$$

$$v1 = v'(i+p, j)$$

$$u2 = u'(i, j+q)$$

$$v2 = v'(i, j+q)$$

$$u3 = u'(i+p, j+q)$$

$$v3 = v'(i+p, j+q)$$

(where "///" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the operation is not an integer, and its priority as an operator is the same as that of the ordinary multiplication and division) and

further wherein three points among these four points and their motion vectors are used as representative points and their motion vectors, respectively.

17. A method of synthesizing an interframe predicted image according to claim 5, wherein

the coordinates of pixels at the left upper end, right upper end, left lower end and right lower end of the image are (0, 0), (r, 0), (0, s) and (r, s) (where r and s are positive integers),

the horizontal and vertical components of motion vectors at corner points (0, 0), (r, 0) and (r, s) of the image take values of integral multiples of 1/n (where n is a positive integer),

said method uses (u00, v00), (u01, v01) and (u03, v03) (where u00, v00, u01, v01, u03 and v03 are integers) which are n times as great as said motion vectors, and

(u0, v0), (u1, v1), (u2, v2) and (u3, v3) which are k times as great as the horizontal and vertical components of motion vectors at points (i, j), (i+p, j), (i, j+q) and (i+p, j+q) are given by,

u'(x, y) = (u00·r·s+(u01-u00)x·s+(u03-u01)y·r)k

///(r·s·n)

v'(x, y) = (v00·r·s+(v01-v00)x·s+(v03-v01)y·r)k

///(r·s·n)

u0 = u'(i, j)

v0 = v'(i, j)

u1 = u'(i+p, j)

v1 = v'(i+p, j)

u2 = u'(i, j+q)

v2 = v'(i, j+q)

u3 = u'(i+p, j+q)

v3 = v'(i+p, j+q)

(where "///" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the operation is not an integer, and its priority as an operator is the same as that of the ordinary multiplication and division) and

further wherein three points among these four points and their motion vectors are used as representative points and their motion vectors, respectively.

18. A method of synthesizing an interframe predicted image according to claim 5, wherein

the coordinates of pixels at the left upper end, right upper end, left lower end and right lower end of the image are (0, 0), (r, 0), (0, s) and (r, s) (where r and s are positive integers),

the horizontal and vertical components of motion vectors at corner points (0, 0), (0, s) and (r, s) of the image take values of integral multiples of 1/n (where n is a positive integer),

said method uses (u00, v00), (u02, v02) and (u03, v03) (where u00, v00, u02, v02, u03 and v03 are integers) which are n times as great as said motion vectors, and

(u0, v0), (u1, v1), (u2, v2) and (u3, v3) which are k times as great as the horizontal and vertical components of motion vectors at points (i, j), (i+p, j), (i, j+q) and (i+p, j+q) are given by,

$$u'(x, y) = (u00 \cdot r \cdot s + (u03 - u02) x \cdot s + (u02 - u00) y \cdot r) k /// (r \cdot s \cdot n)$$

$$v'(x, y) = (v00 \cdot r \cdot s + (v03 - v02) x \cdot s + (v02 - v00) y \cdot r) k /// (r \cdot s \cdot n)$$

$$u0 = u'(i, j)$$

$$v0 = v'(i, j)$$

$$u1 = u'(i+p, j)$$

$$v1 = v'(i+p, j)$$

$$u2 = u'(i, j+q)$$

$$v2 = v'(i, j+q)$$

$$u3 = u'(i+p, j+q)$$

$$v3 = v'(i+p, j+q)$$

(where "///" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the operation is not an integer, and its priority as an operator is the same as that of the ordinary multiplication and division) and

further wherein three points among these four points and their motion vectors are used as representative points and their motion vectors, respectively.

19. A method of synthesizing an interframe predicted image according to claim 5, wherein

coordinates of pixels at the left upper end, right upper end, left lower end and right lower end of the image are (0, 0), (r, 0), (0, s) and (r, s) (where r and s are positive integers),

the horizontal and vertical components of motion vectors at corner points (r, 0), (0, s) and (r, s) of the image take values of integral multiples of 1/n (where n is a positive integer),

said method uses (u01, v01), (u02, v02) and (u03, v03) (where u01, v01, u02, v02, u03 and v03 are integers) which are n times as great as said motion vectors, and

(u0, v0), (u1, v1), (u2, v2) and (u3, v3) which are k times as great as the horizontal and vertical components of motion vectors at points (i, j), (i+p, j), (i, j+q) and (i+p, j+q) are given by,

$$u'(x, y) = (u03 \cdot r \cdot s + (u01 - u03)(r - x) \cdot s + (u02 - u03)(s - y) \cdot r)k /// (r \cdot s \cdot n)$$

$$v'(x, y) = (v03 \cdot r \cdot s + (v01 - v03)(r - x) \cdot s + (v02 - v03)(s - y) \cdot r)k /// (r \cdot s \cdot n)$$

$$u0 = u'(i, j)$$

$$v0 = v'(i, j)$$

$$u1 = u'(i+p, j)$$

$$v1 = v'(i+p, j)$$

$$u2 = u'(i, j+q)$$

$$v2 = v'(i, j+q)$$

$$u3 = u'(i+p, j+q)$$

$$v3 = v'(i+p, j+q)$$

(where "///" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the operation is not an integer, and its priority as an operator is the same as that of the ordinary multiplication and division) and

further wherein three points among these four points and their motion vectors are used as representative points and their motion vectors, respectively.

20. A method of synthesizing an interframe predicted image according to claim 6, wherein

the coordinates of pixels at the left upper end, right upper end, left lower end and right lower end of the image are (0, 0), (r, 0), (0, s) and (r, s) (where r and s are positive integers),

the horizontal and vertical components of motion vectors at corner points (0, 0), (r, 0) and (0, s) of the image take values of integral multiples of 1/n (where n is a positive integer),

said method uses (u00, v00), (u01, v01) and (u02, v02) (where u00, v00, u01, v01, u02 and v02 are integers) which are n times said motion vectors, and

(u0, v0), (u1, v1), (u2, v2) and (u3, v3) which are k times the horizontal and vertical components of motion vectors at points (i, j), (i+p, j), (i, j+q) and (i+p, j+q) and are given by,

$$u'(x, y) = (u00 \cdot r \cdot s + (u01 - u00) x \cdot s + (u02 - u00) y \cdot r) k$$

$$/// (r \cdot s \cdot n)$$

$$v'(x, y) = (v00 \cdot r \cdot s + (v01 - v00) x \cdot s + (v02 - v00) y \cdot r) k$$

$$/// (r \cdot s \cdot n)$$

$$u0 = u'(i, j)$$

$$v0 = v'(i, j)$$

$$u1 = u'(i+p, j)$$

$$v1 = v'(i+p, j)$$

$$u2 = u'(i, j+q)$$

$$v2 = v'(i, j+q)$$

$$u3 = u'(i+p, j+q)$$

$$v3 = v'(i+p, j+q)$$

(where "///" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the operation is not an integer, and its priority as an operator is the same as that of the ordinary multiplication and division) and

further wherein three points among these four points and their motion vectors are used as representative points and their motion vectors, respectively.

21. A method of synthesizing an interframe predicted image according to claim 6, wherein

the coordinates of pixels at the left upper end, right upper end, left lower end and right lower end of the image are (0, 0), (r, 0), (0, s) and (r, s) (where r and s are positive integers),

the horizontal and vertical components of motion vectors at corner points (0, 0), (r, 0) and (r, s) of the image take values of integral multiples of 1/n (where n is a positive integer),

said method uses (u00, v00), (u01, v01) and (u03, v03) (where u00, v00, u01, v01, u03 and v03 are integers) which are n times as great as said motion vectors, and

(u0, v0), (u1, v1), (u2, v2) and (u3, v3) which are k times as great as the horizontal and vertical components of motion vectors at points (i, j), (i+p, j), (i, j+q) and (i+p, j+q) are given by,

$$u'(x, y) = (u00 \cdot r \cdot s + (u01 - u00) x \cdot s + (u03 - u01) y \cdot r) k$$

$$/// (r \cdot s \cdot n)$$

$$v'(x, y) = (v00 \cdot r \cdot s + (v01 - v00) x \cdot s + (v03 - v01) y \cdot r) k$$

$$/// (r \cdot s \cdot n)$$

$$u0 = u'(i, j)$$

$$v0 = v'(i, j)$$

$$u1 = u'(i+p, j)$$

v1 = v'(i+p, j)

u2 = u'(i, j+q)

v2 = v'(i, j+q)

u3 = u'(i+p, j+q)

v3 = v'(i+p, j+q)

(where "///" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the operation is not an integer, and its priority as an operator is the same as that of the ordinary multiplication and division) and

further wherein three points among these four points and their motion vectors are used as representative points and their motion vectors, respectively.

22. A method of synthesizing an interframe predicted image according to claim 6, wherein

the coordinates of pixels at the left upper end, right upper end, left lower end and right lower end of the image are (0, 0), (r, 0), (0, s) and (r, s) (where r and s are positive integers),

the horizontal and vertical components of motion vectors at corner points (0, 0), (0, s) and (r, s) of the image take values of integral multiples of 1/n (where n is a positive integer),

said method uses (u00, v00), (u02, v02) and (u03, v03) (where u00, v00, u02, v02, u03 and v03 are integers) which are n times as great as said motion vectors, and

(u0, v0), (u1, v1), (u2, v2) and (u3, v3) which are k times as great as the horizontal and vertical components of motion vectors at points (i, j), (i+p, j), (i, j+q) and (i+p, j+q) are given by,

u'(x, y) = (u00·r·s+(u03-u02)x·s+(u02-u00)y·r)k

///(r·s·n)

v'(x, y) = (v00·r·s+(v03-v02)x·s+(v02-v00)y·r)k

///(r·s·n)

u0 = u'(i, j)

v0 = v'(i, j)

u1 = u'(i+p, j)

v1 = v'(i+p, j)

u2 = u'(i, j+q)

v2 = v'(i, j+q)

u3 = u'(i+p, j+q)

v3 = v'(i+p, j+q)

(where "///" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the operation is not an integer, and its priority as an operator is the same as that of the ordinary multiplication and division) and

further wherein three points among these four points and their motion vectors are used as representative points and their motion vectors, respectively.

23. A method of synthesizing an interframe predicted image according to claim 6, wherein

coordinates of pixels at the left upper end, right upper end, left lower end and right lower end of the image are (0, 0), (r, 0), (0, s) and (r, s) (where r and s are positive integers),

the horizontal and vertical components of motion vectors at corner points (r, 0), (0, s) and (r, s) of the image take values of integral multiples of 1/n (where n is a positive integer),

said method uses (u01, v01), (u02, v02) and (u03, v03) (where u01, v01, u02, v02, u03 and v03 are integers) which are n times as great as said motion vectors, and

(u0, v0), (u1, v1), (u2, v2) and (u3, v3) which are k times as great as the horizontal and vertical components of

motion vectors at points (i, j), (i+p, j), (i, j+q) and (i+p, j+q) are given by,

$$u'(x, y) = (u03 \cdot r \cdot s + (u01 - u03)(r - x) \cdot s + (u02 - u03)(s - y) \cdot r) k /// (r \cdot s \cdot n)$$

$$v'(x, y) = (v03 \cdot r \cdot s + (v01 - v03)(r - x) \cdot s + (v02 - v03)(s - y) \cdot r) k /// (r \cdot s \cdot n)$$

$$u0 = u'(i, j)$$

$$v0 = v'(i, j)$$

$$u1 = u'(i+p, j)$$

$$v1 = v'(i+p, j)$$

$$u2 = u'(i, j+q)$$

$$v2 = v'(i, j+q)$$

$$u3 = u'(i+p, j+q)$$

$$v3 = v'(i+p, j+q)$$

(where "///" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the operation is not an integer, and its priority as an operator is the same as that of the ordinary multiplication and division) and

further wherein three points among these four points and their motion vectors are used as representative points and their motion vectors, respectively.

24. A method of synthesizing an interframe predicted image according to claim 7, wherein

the coordinates of pixels at the left upper end, right upper end, left lower end and right lower end of the image are (0, 0), (r, 0), (0, s) and (r, s) (where r and s are positive integers),

the horizontal and vertical components of motion vectors at corner points (0, 0), (r, 0), (0, s) and (r, s) of the image take values of integral multiples of 1/n (where n is a positive integer),

said method uses (u00, v00), (u01, v01), (u02, v02) and (u03, v03) (where u00, v00, u01, v01, u02, v02, u03 and v03 are integers) which are n times as great as said motion vectors, and

(u0, v0), (u1, v1), (u2, v2) and (u3, v3) which are k times as great as the horizontal and vertical components of motion vectors at representative points (i, j), (i+p, j), (i, j+q) and (i+p, j+q) are given by,

$$u'(x, y) = ((s-y)(u00\cdot(r-x)+u01\cdot x)+$$
$$y(u02\cdot(r-x)+u03\cdot x))k///(r\cdot s\cdot n)$$
$$v'(x, y) = ((s-y)(v00\cdot(r-x)+v01\cdot x)+$$
$$y(v02\cdot(r-x)+v03\cdot x))k///(r\cdot s\cdot n)$$
$$u0 = u'(i, j)$$
$$v0 = v'(i, j)$$
$$u1 = u'(i+p, j)$$
$$v1 = v'(i+p, j)$$
$$u2 = u'(i, j+q)$$
$$v2 = v'(i, j+q)$$
$$u3 = u'(i+p, j+q)$$
$$v3 = v'(i+p, j+q)$$

(where "///" represents a division for rounding the quotient of the ordinary division into an adjacent integer when the quotient of the operation is not an integer, and its priority as an operator is the same as that of the ordinary multiplication and division).

25. A method of synthesizing an interframe predicted image according to claim 1, wherein the image is divided into two right triangles using a diagonal, and the global motion compensation is independently effected for the pixels contained therein based upon linear interpolation and/or extrapolation.

26. A method of synthesizing an interframe predicted image according to any one of claims 8-24, wherein "///" is

further defined to represent an operation for rounding the quotient of an ordinary division into the most adjacent integer.

27. A method of synthesizing an interframe predicted image according to any one of claims 8-24, wherein "///" is still further defined to represent an operation which, when the quotient of an ordinary division is a value of the sum of an integer and 1/2, rounds this value toward 0.

28. A method of synthesizing an interframe predicted image according to any one of claims 8-24, wherein "///" is still further defined to represent an operation which, when the quotient of an ordinary division is a value of the sum of an integer and 1/2, rounds this value away from 0.

29. A method of synthesizing an interframe predicted image according to any one of claims 3-7, wherein "//" is further defined to represent an operation for rounding the quotient of an ordinary division into the most adjacent integer.

30. A method of synthesizing an interframe predicted image according to any one of claims 3-7, wherein "//" is still further defined to represent an operation which, when the quotient of an ordinary division is a value of the sum of an integer and 1/2, rounds this value toward 0.

31. A method of synthesizing an interframe predicted image according to any one of claims 3-7, wherein "//" is still further defined to represent an operation which, when the quotient of an ordinary division is a value of the sum of an integer and 1/2, rounds this value away from 0.

32. A method of synthesizing an interframe predicted image according to any one of claims 3-7, wherein "//" is still further defined to represent an operation which, when the quotient of an ordinary division is a value of the sum of an integer and 1/2, rounds this value toward 0 when the

dividend is negative and rounds this value away from 0 when the dividend is positive.

33. A method of synthesizing an interframe predicted image according to any one of claims 3-7, wherein "//" is still further defined to represent an operation which, when the quotient of an ordinary division is a value of the sum of an integer and 1/2, rounds this value away from 0 when the dividend is negative and rounds this value toward 0 when the dividend is positive.

34. A method of synthesizing an interframe predicted image according to any one of claims 1 or 2, wherein when r denotes the lateral length of the image and s denotes the vertical length of the image, p is smaller than r, 2p is larger than r, q is smaller than s, and 2q is larger than s.

35. A method of synthesizing an interframe predicted image according to any one of claims 1 or 2, wherein when r denotes the lateral length of the image and s denotes the vertical length of the image, p/2 is smaller than r, p is larger than r, q/2 is smaller than s, and q is larger than s.

36. A method of coding and decoding an image based upon the method of synthesizing an interframe predicted image of any one of claims 1 or 2.

37. A method of coding an image based upon the method of synthesizing an interframe predicted image of any one of claims 1 or 2, wherein the data related to the motion vectors of the representative points are directly coded.

38. A method of decoding an image based upon the method of synthesizing an interframe predicted image according to any one of claims 1 or 2, wherein the data related to the motion vectors of the representative points that have been directly coded as coded data are used by reproducing the data.

39. A method of coding an image based upon the method of synthesizing an interframe predicted image of any one of

claims 1 or 2, wherein the data related to motion vectors of points at corners of an image are directly coded.

40. A method of decoding an image based upon the method of synthesizing an interframe predicted image of any of claims 1 or 2, wherein the data related to motion vectors of points at corners of an image that have been directly coded as coded data, are used by reproducing the data.

41. A storage medium for storing a global motion compensation program, the program comprising:

calculating the motion vectors for all pixels in an image by effecting the linear interpolation and/or extrapolation of the motion vectors at three representative points for the image, and

assuming sampling intervals of the pixels to be 1 in both horizontal and vertical directions with respect to the image, and assuming sampling points for which horizontal and vertical components of coordinates of the sampling points are both integers,

wherein the three points used as the representative points are selected from among four points of which the coordinates are (i, j), (i+p, j), (i, j+q), and (i+p, j+q) (where i and j are integers, and p and q are positive integers), and wherein p and q are 2^{α} and 2^{β} (α and β are positive integers), respectively.

42. A storage medium for storing a global motion compensation program, the program comprising:

calculating the motion vectors for all pixels in an image by effecting the linear interpolation and/or extrapolation of the motion vectors at four representative points for the image, and

assuming sampling intervals of the pixels to be 1 in both horizontal and vertical directions with respect to the image, and assuming sampling points for which horizontal and

vertical components of coordinates of the sampling points are both integers,

wherein the four representative points have the coordinates of (i, j), (i+p, j), (i, j+q), and (i+p, j+q) (where i and j are integers, and p and q are positive integers), and wherein p and q are 2^{α} and 2^{β} (α and β are positive integers), respectively.